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		1	50
R.graminis	(1)	MAPSLDSLATTLANGFTNGSHAAPTKSAAGPTSALRRTPGLDGHAAHQSQ	
R.mucilaginosa	(1)	MAPSVDSIATSVANSLSNGLHAAAAANGG-DVHKKTAGAGSLLPTTETTQ	
R.toruloides	(1)	MAPSLDSISHSFANGVASAKQAVNGAS-----TNLAVAGSHLPTTQVVTQ	
Consensus	(1)	MAPSLDSIATSXANGXXNGXHAAXXASXXXXXXXXXXAXAGSXLPTTXXTQ	
		51	100
R.graminis	(51)	LEIVQELLSDP-TDDVVELSGYSLTVRDVVGAAARKGRRVRVQNDDEIRAR	
R.mucilaginosa	(50)	LDIVERILADAGATDQIKLDGYTLTLGDVVGAAARRGRSVKVADSPHIREK	
R.toruloides	(45)	VDIVEKMLAAP-TDSTLELDGYSLNLGDVVSAAARKGRPVRVKDSDEIRSK	
Consensus	(51)	LDIVEXXLADPXTDDXXELDGYSLTLGDVVGAAARKGRXVRVKDSDEIRXK	
		101	150
R.graminis	(100)	VDKSVDFLKAQLQNSVYGVTGFGGSADTRTEDAVSLQKALIEHQLCGVT	
R.mucilaginosa	(100)	IDASVEFLRTQLDNSVYGVTGFGGSADTRTEDAISLQKALLEHQLCGVL	
R.toruloides	(94)	IDKSVEFLRSQLSMSVYGVTGFGGSADTRTEDAISLQKALLEHQLCGVL	
Consensus	(101)	IDKSVEFLRXQLXNSVYGVTGFGGSADTRTEDAISLQKALLEHQLCGVL	
		151	200
R.graminis	(150)	PTSVSSFSVGRGLENLTPLEVVRGAMVIRVNSLTRGHSAVRLVVLEALTN	
R.mucilaginosa	(150)	PTSMDFALGRGLENLPLEVVRGAMTIRVNSLTRGHSAVRIVVLEALTN	
R.toruloides	(144)	PSSFDSFRLGRGLENLPLEVVRGAMTIRVNSLTRGHSAVRLVVLEALTN	
Consensus	(151)	PTSXDSFXLGRGLENLPLEVVRGAMTIRVNSLTRGHSAVRLVVLEALTN	
		201	250
R.graminis	(200)	FLNHRITPIVPLRGSISASGDLSPLSYIAGAITGHPDVKVHVLHEGTEKI	
R.mucilaginosa	(200)	FLNHGITPIVPLRGTISASGDLSPLSYIAASITGHPDSKVHVDG---KI	
R.toruloides	(194)	FLNHGITPIVPLRGTISASGDLSPLSYIAAAISGHPDSKVHVHVEGKEKI	
Consensus	(201)	FLNHGITPIVPLRGTISASGDLSPLSYIAAAITGHPDSKVHVXHEGXKEI	
		251	300
R.graminis	(250)	MFAREAISLFGLEAVVLGPKEGLGLVNGTAVSASMATLSLHDSHMLSLLS	
R.mucilaginosa	(246)	MSAQEAIALKGLQPVVLPKEGLGLVNGTAVSASMATLALTDHVLSLLA	
R.toruloides	(244)	LYAREAMALFNLEPVVLGPKEGLGLVNGTAVSASMATLALHDAHMLSLLS	
Consensus	(251)	MXAREAIALFGLEPVVLGPKEGLGLVNGTAVSASMATLALHDAHMLSLLS	
		301	350
R.graminis	(300)	QALTALTVEAMVGQGSFAPFIHDVCRPHPGQVEVARNIRTLLSGSSFAV	
R.mucilaginosa	(296)	QALTALTVEAMVGHAGSFHPFLHDVTRPHPTQIEVARNIRTLLLEGSKYAV	
R.toruloides	(294)	QSLTAMTVEAMVGHAGSFHPFLHDVTRPHPTQIEVAGNIRKLLLEGSRFAV	
Consensus	(301)	QALTALTVEAMVGHAGSFHPFLHDVTRPHPTQIEVARNIRTLLLEG SXFAV	

FIGURE 1A

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		351	400
R.graminis	(350)	EHEEEVKVKDDEGILRQDRYPLRTSPQFLGPLVEDMMHAYSTLSLEN-NT	
R.mucilaginosa	(346)	HHETE VKVKDDEGILRQDRYPLRCSPQWLGPLVSDMIHAHAVLSLEAGQS	
R.toruloides	(344)	HHEEEVKVKDDEGILRQDRYPLRTSPQWLGPLVSDLIHAHAVLTIEAGQS	
Consensus	(351)	HHEEEVKVKDDEGILRQDRYPLRTSPQWLGPLVSDMIHAHAVLSLEAGQS	
		401	450
R.graminis	(399)	TTDNPLLDVENKQTAHGGNFQASAVSISMEKTRLALALIGKLNFTQCTEL	
R.mucilaginosa	(396)	TTDNPLIDLENKMTTHGGAFMASSVGNTMEKTRLAVALMGKVSFTQLTEM	
R.toruloides	(394)	TTDNPLIDVENKTSHHGGNFQAAAVANTMEKTRLGLAQIGKLNFTQLTEM	
Consensus	(401)	TTDNPLIDVENKXTHGGNFQASAVXNTMEKTRLALALIGKLNFTQLTEM	
		451	500
R.graminis	(449)	LNAAMNRGLPSCLAAEDPSLNYHGKGLDIHIAAYASELGHLANPVTTFVQ	
R.mucilaginosa	(446)	LNAGMNRALPSCLAAEDPSLSYHCKGLDIAAAAYTSELGHLANPVSTHVQ	
R.toruloides	(444)	LNAGMNRGLPSCLAAEDPSLSYHCKGLDIAAAAYTSELGHLANPVTTHVQ	
Consensus	(451)	LNAGMNRGLPSCLAAEDPSLSYHCKGLDIAAAAYTSELGHLANPVTTHVQ	
		501	550
R.graminis	(499)	PAEMGNQAVNSLALISARRTAEANDVLSLLLASHLYCTLQAVDLRAMELD	
R.mucilaginosa	(496)	PAEMGNQAINSLALISARRTAEANDVLSLLLATHLYCVLQAVDLRAMEFE	
R.toruloides	(494)	PAEMANQAVNSLALISARRTTESNDVLSLLLATHLYCVLQADLRAIEFE	
Consensus	(501)	PAEMGNQAVNSLALISARRTAEANDVLSLLLATHLYCVLQAVDLRAMEFE	
		551	600
R.graminis	(549)	FKKQFDPLLP TLLQOHLGTGLDVN---ALALEVKKALNKRLEQTTTTYDL	
R.mucilaginosa	(546)	HTKAFEPMTBELLKQHFGALAT----AEVEDKVRKSIYKRLQONNSYDL	
R.toruloides	(544)	FKKQFGPAIVSLIDQHFGSMTGSNLRDELVEKVNKTAKRLEQTN SYDL	
Consensus	(551)	FKKQFXPXXXXLLXQHFGXXXXXXXELXXXKVXXKLXKRLEQTN SYDL	
		601	650
R.graminis	(595)	EPRWHDAFSYATGT VVELLSSSPSANVTLTAVNAWKVASAEKAISLTREV	
R.mucilaginosa	(591)	EQRWHDTF SVATGAVVEALAG---QEVSLASLNAWKVACA EKAIALTRSV	
R.toruloides	(594)	VPRWHDAFSFAAGTVVEVLSS---TSLSLAAVNAWKVAAAESAISLTRQV	
Consensus	(601)	EPRWHDAFS XATGT VVELLSSXXXXXVSLAAVNAWKVAXAEKAISLTRXV	
		651	700
R.graminis	(645)	RNRFWQTPSSQAPAHAYLSPRTRVLYSFVREELGVQARRGDV FVG VQOET	
R.mucilaginosa	(638)	RDSFWAAPSSSSPALKYLSPRTRVLYSFVREEVG VKARRGDVYLGKQEV T	
R.toruloides	(641)	RETFWSAASTSSPALS YLSPRTQILYAFVREELGVKARRGDVFLGKQEV T	
Consensus	(651)	RXXFWXAPSSSSPALXYLSPRTRVLYSFVREELGVKARRGDVFLGKQEV T	
		701	726
R.graminis	(695)	IGSNVSRIYEAIK DGRINHV LVKMLA	
R.mucilaginosa	(688)	IGTNVSRIYEAIKSGCIAPVLVKMMA	
R.toruloides	(691)	IGSNVSKIYEAIKSGRINNVLLKMLA	
Consensus	(701)	IGSNVSRIYEAIKSGRINXVLVKMLA	

FIGURE 1B

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		1	50
R.graminis	(1)	ATGGCCCCCTTCTTGGACTCGCTCGCCACCACGCTCGCCAACGGCTTTAC	
R.mucilaginosa	(1)	ATGGCCCCCTCCGTCGACTCGATCGCGACTTCGGTTGCCAACTCCCTCTC	
R.toruloides	(1)	ATGGCACCTCGCTCGACTCGATCTCGACTCGTTGCGAAACGGCGTCGC	
Consensus	(1)	ATGGCCCCCTCCNTCGACTCGATCGCGACCTCGNTCGCCAACGGCNTCNC	
		51	100
R.graminis	(51)	CAACGGCTCGCACGCCGCTCCGACCAAGTCGGCTGCGGGCCCCACTTCGG	
R.mucilaginosa	(51)	GAACGGGTTGCACGCCG--CCGCC--GCCGCCAACGGTGGCGACGTCCA	
R.toruloides	(51)	ATCCGCAAAGCAGGCTG-----TC-----AATGGCGCCTCGACCA	
Consensus	(51)	NAACGGNTNGCACGCCGNNCCGNCNNNGNCGNCGNACGGGCGCCACGTCCA	
		101	150
R.graminis	(101)	CTCTCCGCCGCACGCC-CGGCCTCGATGGCCACG-CCGCGCACCAGTCGC	
R.mucilaginosa	(96)	CAAGAAGACGGCCGGTGCTGGCTCCCTCCTCCCGACCACCGAGACGACCC	
R.toruloides	(86)	ACCTC-----GCAGTCGCAGGCTCGCACCTGCCACAACCCAGGTCAAGC	
Consensus	(101)	CNCTCNGNCGGCCGNCGCGNGGCTCGCTCCTCCCGACCACCCAGNNGACGC	
		151	200
R.graminis	(149)	AGCTCGAGATCGTGCAGGAGCTCCTCAGCGACCCACCG--ACG-ACGTC	
R.mucilaginosa	(146)	AGCTCGACATCGTTGAGCGCATCTTGGCCGACGCCGGCGCGACGGACCAG	
R.toruloides	(131)	AGGTGACATCGTCGAGAAGATGCTCGCCGCGCCGACCGACTCG-ACG--	
Consensus	(151)	AGCTCGACATCGTNGAGNAGATCCTCGCCGACCCACCGNNACGNACGNN	
		201	250
R.graminis	(196)	GTCTGAGCTCAGCGGGTACAGCCTACCGTCCGTGACGTTGTTCGGCGCCGC	
R.mucilaginosa	(196)	ATCAAACTCGATGGGTACACCCTACGCTCGGCGACGTCGTTCGGCGCTGC	
R.toruloides	(178)	CTCGAACTCGACGGCTACTCGCTCAACCTCGGAGACGTCGTCTCGGCCGC	
Consensus	(201)	NTCGAACTCGACGGGTACACCCTACCCCTCGGNGACGTCGTTCGGCGCCGC	
		251	300
R.graminis	(246)	CCGCAAGGGGCGCAGGGTCCGCGTC-CAGAACGACGACGAGATCCGCGCA	
R.mucilaginosa	(246)	TCGCCGTGGCCGCTCCGTCAAGGTGCGAGACAGCCCGC-ACATCCGCGAG	
R.toruloides	(228)	GAGGAAGGGCAGGCCTGTCGCGTCAAGGACAG-CGACGAGATCCGCTCA	
Consensus	(251)	NCGCAAGGGCCGNCNGTCCGCGTCNCAGACAGNCGACGAGATCCGCGCA	
		301	350
R.graminis	(295)	CGGTCGACAAGAGCGTCGACTTCCTCAAGGCCAGCTTCAGAACTCGGT	
R.mucilaginosa	(295)	AAGATCGATGCCAGTGTGCGAGTTCTCCGTACTCAGCTCGACAACAGTGT	
R.toruloides	(277)	AAGATTGACAAATCGGTGCGAGTTCTTGCGCTCGCAACTCTCCATGAGCGT	
Consensus	(301)	AAGATCGACAANAGNGTCGAGTTCTCCGNNCNCAGCTCNACAACAGNGT	
		351	400
R.graminis	(345)	CTACGGAGTCAACACGGGTTTCGGTGGCTCGGCCGACACGAGGACTGAGG	
R.mucilaginosa	(345)	CTACGGTGTACGACTGGTTTCGGCGGCTCGGCCGACACCCGGACTGAGG	
R.toruloides	(327)	CTACGGCGTCACGACTGGATTTGGCGGATCCGCGACACCCGACCCGAGG	
Consensus	(351)	CTACGGNGTCACGACTGGTTTCGGCGGCTCGGCCGACACCCGGACTGAGG	
		401	450
R.graminis	(395)	ATGCAGTCAGCCTCCAGAAGGCGCTCATCGAGCACCAGCTCTGCGGCGTG	
R.mucilaginosa	(395)	ATGCGATCTCGCTCCAAAAGGCCCTGCTCGAGCACCAGCTCTGCGGTGTC	
R.toruloides	(377)	ACGCCATCTCGCTCCAGAAGGCTCTCCTCGAGCACCAGCTCTGCGGTGTT	
Consensus	(401)	ATGCNATCTCGCTCCAGAAGGCNCTCCTCGAGCACCAGCTCTGCGGTGTN	

Figure 2A

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		451	500
R.graminis	(445)	ACGCCGACGTCCGTCTCGTCCCTTCAGCGTCGGACGCGGCCTCGAGAACAC	
R.mucilaginosa	(445)	CTCCCCACCTCGATGGATGGCTTTGCGCTCGGTGCGGCCTCGAGAACTC	
R.toruloides	(427)	CTCCCTTCGTCTGTTGACTCGTTCGCGCTCGGCCGCGGTCTCGAGAACTC	
Consensus	(451)	CTCCCNACGTCGNTCGANTCCTTCNGCCTCGGNCGCGGCCTCGAGAACTC	
		501	550
R.graminis	(495)	GCTTCCGCTCGAGGTCGTCCGCGGCGCCATGGTCATCCGCGTCAACTCGC	
R.mucilaginosa	(495)	GCTTCCGCTCGAAGTCGTCCGAGGCGCGATGACCATCCGTGTCAACTCGC	
R.toruloides	(477)	GCTTCCCTTCGAGGTTGTTTCGCGGCGCCATGACAATCCGCGTCAACAGCT	
Consensus	(501)	GCTTCCGCTCGAGGTCGTCCGCGGCGCCATGACCATCCGCGTCAACTCGC	
		551	600
R.graminis	(545)	TCACGCGTGGCCACTCGGCCGTCCGCCTCGTCGTCCTTGAGGCGCTCACC	
R.mucilaginosa	(545)	TCACTCGCGGTCACTCGGCGGTCCGCATCGTCGTCCTCGAAGCCCTCACC	
R.toruloides	(527)	TGACCCGCGGCCACTCGGCTGTCCGCCTCGTCGTCCTCGAGGCGCTCACC	
Consensus	(551)	TCACNCGCGGCCACTCGGCNGTCCGCCTCGTCGTCCTCGAGGCGCTCACC	
		601	650
R.graminis	(595)	AACTTCTTGAACCACCGCATCACGCCCATCGTCCCCCTCCGCGGTCCAT	
R.mucilaginosa	(595)	AACTTCCTCAACCACGGCATCACCCGATCGTCCCGTTTCGAGGCACCAT	
R.toruloides	(577)	AACTTCCTCAACCACGGCATCACCCCATCGTCCCCCTCCGCGGCACCAT	
Consensus	(601)	AACTTCCTCAACCACGGCATCACCCCATCGTCCCCCTCCGCGGCACCAT	
		651	700
R.graminis	(645)	CTCGGCGTCGGGCGACCTCAGCCCGCTCTCGTACATCGCCGCGCCATCA	
R.mucilaginosa	(645)	CTCGGCGTCGGGCGACCTTTCCCCCTCTTTACATCGCCGCCTCGATCA	
R.toruloides	(627)	CTCTGCGTCGGGCGACCTCTCTCTCTCTCTTACATTGCAGCGGCCATCA	
Consensus	(651)	CTCGGCGTCGGGCGACCTCTCCCNCTCTCNTACATCGCCGCGCCATCA	
		701	750
R.graminis	(695)	CCGGTCACCCCGACGTCAAGGTTACGTTTTGCACGAGGGAACCGAGAAG	
R.mucilaginosa	(695)	CCGGCCACCCGGACTCGAAGGTCCACGT-----CGACGGCA-----AG	
R.toruloides	(677)	GCGGTACCCCGACAGCAAGGTGCACGTCTGTCACGAGGGCAAGGAGAAG	
Consensus	(701)	CCGGTCACCCCGACNNCAAGGTNCACGTNNTNCACGAGGGCANNGAGAAG	
		751	800
R.graminis	(745)	ATCATGTTTGCGCGGAGGCCATCTCGTCTTTGGTCTCGAGGCAGTCGT	
R.mucilaginosa	(733)	ATCATGTCCGCCCAGGAGGCGATCGCGCTCAAGGGTCTTCAGCCCGTCGT	
R.toruloides	(727)	ATCCTGTACGCCCGGAGGCGATGGCGCTCTTCAACCTCGAGCCCGTCGT	
Consensus	(751)	ATCATGTNCGCCCGGAGGCGATCGCGCTCTTNGGTCTCGAGCCCGTCGT	
		801	850
R.graminis	(795)	CCTCGGCCCGAAGGAGGGTCTCGGTCTGGTCAACGGAACGGCCGTCTCCG	
R.mucilaginosa	(783)	CCTCGGTCCGAAGGAGGGTCTCGGTCTCGTCAACGGCACGGCCGTCTCCG	
R.toruloides	(777)	CCTCGGCCCGAAGGAAGGTCTCGGTCTCGTCAACGGCACGGCCGTCTCAG	
Consensus	(801)	CCTCGGCCCGAAGGAGGGTCTCGGTCTCGTCAACGGCACGGCCGTCTCCG	
		851	900
R.graminis	(845)	CCTCGATGGCGACCCTCAGTCTGCACGACTCGCACATGCTCTCGTCTCTC	
R.mucilaginosa	(833)	CCTCGATGGCGACGCTGGCCCTCACCGACGCACACGTCTCTCGTCTCTC	
R.toruloides	(827)	CATCGATGGCCACCCTCGTCTGCACGACGCACACATGCTCTCGTCTCTC	
Consensus	(851)	CCTCGATGGCGACCCTCGTCTGCACGACGCACACATGCTCTCGTCTCTC	

Figure 2B

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		901	950
R.graminis	(895)	TCGCAGGCCCTTGACGGCTCTCACGGTGGAGGCCATGGTCGGCCAGCAGGG	
R.mucilaginosa	(883)	GCACAGGCGCTCACTGCTCTTACTGTTCGAGGCCATGGTCGGACACGCCGG	
R.toruloides	(877)	TCGCAGTCGCTCACGGCCATGACGGTTCGAAGCGATGGTCGGCCACGCCGG	
Consensus	(901)	TCGCAGGCGCTCACGGCTCTNACGGTCGAGGCCATGGTCGGCCACGCCGG	
		951	1000
R.graminis	(945)	CTCGTTTCGCGCCGTTTCATCCACGACGTCTGCCGCCCCGACCCCGGCCAGG	
R.mucilaginosa	(933)	CTCGTTCCACCCATTTCCTCCACGACGTACGCGCCCTCACCCGACCCAGA	
R.toruloides	(927)	CTCGTTCCACCCCTTCCTTCACGACGTACGCGCCCTCACCCGACGCAGA	
Consensus	(951)	CTCGTTCCACCCNTTCCTCCACGACGTACGCGCCCTCACCCGACCCAGA	
		1001	1050
R.graminis	(995)	TCGAGGTCGCGCGCAACATCCGCACGCTCCTTTCCGGCTCGTCGTTTGCC	
R.mucilaginosa	(983)	TCGAGGTGGCGCGCAACATCCGGACTCTTCTCGAGGGCAGCAAGTACGCC	
R.toruloides	(977)	TCGAAGTCGCGGGAAACATCCGCAAGCTCCTCGAGGGAAGCCGCTTTGCT	
Consensus	(1001)	TCGAGGTCGCGCGCAACATCCGCACGCTCCTCGAGGGCAGCNGTTTGCC	
		1051	1100
R.graminis	(1045)	GTTGAGCACGAGGAGGAGGTCAAGGTCAAGGACGACGAGGGCATTCTTCG	
R.mucilaginosa	(1033)	GTCCACCACGAGACTGAAGTCAAGGTCAAGGACGACGAGGGCATTCTTCAG	
R.toruloides	(1027)	GTCCACCATGAGGAGGAGGTCAAGGTCAAGGACGACGAGGGCATTCTCCG	
Consensus	(1051)	GTCCACCACGAGGAGGAGGTCAAGGTCAAGGACGACGAGGGCATTCTCCG	
		1101	1150
R.graminis	(1095)	CCAGGACCGCTACCCGCTCCGCACGTGCGCTCAGTTCTCGGCCCGCTCG	
R.mucilaginosa	(1083)	GCAGACCGGTACCCGCTCCGCTGCTCGCCGAGTGGCTCGGTCCCTTTG	
R.toruloides	(1077)	CCAGGACCGCTACCCCTTGCGCACGTCTCCTCAGTGGCTCGGCCCGCTCG	
Consensus	(1101)	CCAGGACCGCTACCCGCTCCGCACGTGCGCTCAGTGGCTCGGCCCGCTCG	
		1151	1200
R.graminis	(1145)	TGAGGACATGATGCACGCCTACTCGACTCTCTCGCTCGAGAACA---AC	
R.mucilaginosa	(1133)	TCAGCGACATGATTACGCTCACGCTGTCTCTCGCTCGAGGCTGGTCAG	
R.toruloides	(1127)	TCAGCGACCTCATTCACGCCCACGCCGTCTCACCATCGAGGCCGGCCAG	
Consensus	(1151)	TCAGCGACATGATTACGCCCACGNGTCTCTCGCTCGAGGCCGGNCAG	
		1201	1250
R.graminis	(1192)	ACGACGACCGACAACCCGCTCCTCGACGTGAGAAACAAGCAGACCGCGCA	
R.mucilaginosa	(1183)	TCGACCACCGACAACCCGCTGATCGACCTCGAGAAACAAGATGACCCACCA	
R.toruloides	(1177)	TCGACGACCGACAACCCCTCTCATCGACGTGAGAAACAAGACTTCGCACCA	
Consensus	(1201)	TCGACGACCGACAACCCGCTCATCGACGTGAGAAACAAGANGACCCACCA	
		1251	1300
R.graminis	(1242)	CGGCGGCAACTTCCAGGCGTCCGCTGTCTCGATTTCGATGGAGAAGACCA	
R.mucilaginosa	(1233)	TGGCGGAGCCTTCATGGCGAGCAGCGTCGGAAACACGATGGAGAAGACTC	
R.toruloides	(1227)	CGGCGGCAATTTCCAGGCTGCCGCTGTGGCCAACACCATGGAGAAGACTC	
Consensus	(1251)	CGGCGGCAACTTCCAGGCGNCCGCTGTGCGNAACACGATGGAGAAGACTC	
		1301	1350
R.graminis	(1292)	GGCTCGCACTCGCCCTCATCGGCAAGCTCAACTTCACGCAGTGCACCGAG	
R.mucilaginosa	(1283)	GCCTCGCCGTGCGCTGATGGGCAAGGTCAGCTTTACTCAGCTCACCGAG	
R.toruloides	(1277)	GCCTCGGGCTCGCCCAGATCGGCAAGCTCAACTTCACGCAGCTCACCGAG	
Consensus	(1301)	GCCTCGCNCTCGCCCTGATCGGCAAGCTCAACTTCACGCAGCTCACCGAG	

Figure 2C

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		1351	1400
R.graminis	(1342)	TTGCTCAACGCTGCCATGAACCGGGCCTGCCTTCGTGCCTCGCTGCCGA	
R.mucilaginosa	(1333)	ATGCTCAACGCCGGCATGAACCGGGCCCTTCCGTCTGCCTCGCTGCCGA	
R.toruloides	(1327)	ATGCTCAACGCCGGCATGAACCGGGCCTCCCTTCCTGCCTCGCGGCCGA	
Consensus	(1351)	ATGCTCAACGCCGGCATGAACCGGGCCTNCCNTCCTGCCTCGCTGCCGA	
		1401	1450
R.graminis	(1392)	GGACCCGTCGCTCAACTATCACGGCAAGGGCTTGGACATTACATCGCTG	
R.mucilaginosa	(1383)	GGACCCCTCCCTCTCTTATCACTGCAAGGGTCTCGACATTGCTGCGGCCG	
R.toruloides	(1377)	AGACCCCTCGCTCTCTTACCCTGCAAGGGCCTCGACATCGCCGCTGCGG	
Consensus	(1401)	GGACCCNTCGCTCTCTTATCACTGCAAGGGCCTCGACATTGCCGNGCNG	
		1451	1500
R.graminis	(1442)	CTTACGCTTCGGAGCTCGGCCACCTTGCCAACCCGGTCACTACCTTCGTC	
R.mucilaginosa	(1433)	CCTACACTTCCGAGCTCGGTACCTTGCCAACCCGGTTTCGACCCACGTC	
R.toruloides	(1427)	CGTACACCTCGGAGTTGGGACACCTCGCCAACCTGTGACGACGCATGTC	
Consensus	(1451)	CNTACACTTCGGAGCTCGGNCACCTTGCCAACCCGGTNACGCCACGTC	
		1501	1550
R.graminis	(1492)	CAGCCCGCAGAGATGGGCAACCAGGCCGTCAACTCGCTCGCTCTCATCTC	
R.mucilaginosa	(1483)	CAGCCGGCCGAGATGGGCAACCAGGCCATCAACTCGCTCGCCCTCATCTC	
R.toruloides	(1477)	CAGCCGGCTGAGATGGGCAACCAGGCCGTCAACTCGCTTGCCTCATCTC	
Consensus	(1501)	CAGCCGGCNGAGATGGGCAACCAGGCCGTCAACTCGCTCGCNCCTCATCTC	
		1551	1600
R.graminis	(1542)	CGCGCGCCGCACTGCCGAGGCCAACGACGTCCTTTCTCTCCTTCTCGCCT	
R.mucilaginosa	(1533)	GGCCCGCCGCAACCGCCGAGGCCAACGACGTTCTCTCCCTCCTCTCGCCA	
R.toruloides	(1527)	GGCTCGTCGCACGACCGAGTCCAACGACGTCCTTTCTCTCCTCCTCGCCA	
Consensus	(1551)	GGCNCGCCGACNGCCGAGGCCAACGACGTCCTTTCTCTCCTCCTCGCCA	
		1601	1650
R.graminis	(1592)	CGCACCTGTACTGCACGCTCCAGGCCGTGACCTCCGCGCGATGGAGCTC	
R.mucilaginosa	(1583)	CCCACTCTACTGCGTCTCTCCAGGCCGTGACCTCCGCGCGATGGAGTTT	
R.toruloides	(1577)	CCCACTCTACTGCGTCTCTCAAGCCATCGACTTGCGCGCGATCGAGTTC	
Consensus	(1601)	CCCACTCTACTGCGTNTCTCCAGGCCGTGACCTCCGCGCGATGGAGTTC	
		1651	1700
R.graminis	(1642)	GACTTCAAGAAGCAGTTCGACCCGCTTCTCCCGACTCTCCTCCAGCAGCA	
R.mucilaginosa	(1633)	GAGCACACCAAGGCGTTCGAGCCGATGGTCACTGAGCTGTTGAAGCAGCA	
R.toruloides	(1627)	GAGTTCAGAAGCAGTTCGCGCCAGCCATCGTCTCGCTCATCGACCAGCA	
Consensus	(1651)	GAGTTCAGAAGCAGTTCGACCCGNTNNTCNCNCGCTCNTCAGCAGCA	
		1701	1750
R.graminis	(1692)	CCTCGGCACTGGCCTCGACGTCA-----ACGCACTTGCGCTCG	
R.mucilaginosa	(1683)	CTTTGGCGC-GCTCGCGACGGC-----CGAAGTCGAGGACA	
R.toruloides	(1677)	CTTTGGCTCCGCCATGACCGGCTCGAACCTGCGCGACGAGCTCGTCGAGA	
Consensus	(1701)	CTTTGGCNCNGCCCTCGACGGCNNNNNNNNNNNNNACGAACCTCGNGGACA	
		1751	1800
R.graminis	(1730)	AGGTCAAGAAGGCGCTCAACAAGCGTCTCGAGCAGACGACGACGTACGAC	
R.mucilaginosa	(1718)	AGGTCCGCAAGTCGATCTACAAGCGGTTGCAGCAGAACAACTCGTACGAC	
R.toruloides	(1727)	AGGTGAACAAGACGCTCGCCAAGCGCCTCGAGCAGACCAACTCGTACGAC	
Consensus	(1751)	AGGTCAACAAGNCGCTCNACAAGCGNCTCGAGCAGACCAACTCGTACGAC	

Figure 2D

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		1801		1850
R.graminis	(1780)	CTCGAGCCGCGCTGGCACGACGCCTTCTCGTACGCGACCGGCACCGTCGT		
R.mucilaginosa	(1768)	CTCGAGCAGCGGTGGCACGACAGTTCCTCGGTGCGACCGGTGCCGTCGT		
R.toruloides	(1777)	CTCGTCCCGCGCTGGCACGACGCCTTCTCCTTCGCCGCCGGCACCGTCGT		
Consensus	(1801)	CTCGAGCCGCGCTGGCACGACGCCTTCTCGTTCGCGACCGGCACCGTCGT		
		1851		1900
R.graminis	(1830)	CGAGCTCCTCTCGTCTCGCCCTCTGCCA--ACGTACCCTTACTGCCGT		
R.mucilaginosa	(1818)	CGAG-----GCGCTCGCCG---GCCAGGAGGTCTCGCTCGCGAGCCT		
R.toruloides	(1827)	CGAG-----GTCCTCTCGTC--GACGT-CGCTCTCGCTCGCCGCCGT		
Consensus	(1851)	CGAGNNNNNNNGTCTCGCCNNNGCCANNAGGTCTCGCTCGCNGCCGT		
		1901		1950
R.graminis	(1878)	CAACGCGTGGAAGGTTGCCTCGGCCGAGAAGGCCATCTCGCTCACGCGCG		
R.mucilaginosa	(1857)	CAACGCCTGGAAGGTGCGCTGCGCCGAGAAGGCTATCGCGCTCACGCGCT		
R.toruloides	(1866)	CAACGCCTGGAAGGTGCGCCGCCGAGTCGGCCATCTCGCTCACCCGCC		
Consensus	(1901)	CAACGCCTGGAAGGTGCGCTCCGCCGAGAAGGCCATCTCGCTCACGCGCN		
		1951		2000
R.graminis	(1928)	AGGTGCGCAACCGCTTCTGGCAGACGCCGTCTTCGCAGGCGCCGGCGCAC		
R.mucilaginosa	(1907)	CCGTCCGCGACTCGTTCTGGGCGGCTCCGTCTGTCGTCGTCGCCCCGCGCTC		
R.toruloides	(1916)	AAGTCCGCGAGACCTTCTGGTCCGCCGCGTCGACCTCGTCGCCCCGCGCTC		
Consensus	(1951)	ANGTCCGCGACNCCTTCTGGNCGGCNCCGTCTGTCGTCGTCGCCCCGCGCTC		
		2001		2050
R.graminis	(1978)	GCATACCTCTCGCCGCGCACGCGCTCCTGTACTCGTTCTGTGCGCGAGGA		
R.mucilaginosa	(1957)	AAGTACCTCTCCCCGCGGACGCGCTCCTGTATTCTGTTCTGTCGCGGAGGA		
R.toruloides	(1966)	TCGTACCTCTCGCCGCGCACTCAGATCCTCTACGCCCTTCGTCCGCGAGGA		
Consensus	(2001)	NCGTACCTCTCGCCGCGCACGCGCTCCTGTACTCGTTCTGTGCGCGAGGA		
		2051		2100
R.graminis	(2028)	GCTCGGCGTGCAAGGCGCGCCGCGGCGACGTGTTTGTGCGGCGTGCAAGGAGG		
R.mucilaginosa	(2007)	GGTCGGCGTCAAGGCCCCGCGCGGCGATGTCTACCTCGGCAAGCAGGAGG		
R.toruloides	(2016)	GCTTGGCGTCAAGGCCCCGCGCGGAGACGTCTTCTCGGCAAGCAAGAGG		
Consensus	(2051)	GCTCGGCGTCAAGGCCCCGCGCGGCGACGTCTTCTCGGCAAGCAGGAGG		
		2101		2150
R.graminis	(2078)	AGACGATCGGGAGCAACGTCTCGCGCATCTACGAGGCCATCAAGGACGGC		
R.mucilaginosa	(2057)	TCACGATCGGCACCAACGTCTCAGCCGATCTACGAGGCGATCAAGAGCGGT		
R.toruloides	(2066)	TGACGATCGGCTCGAACGTCTCCAAGATCTACGAGGCCATCAAGTCGGGC		
Consensus	(2101)	TGACGATCGGCACCAACGTCTCCCGCATCTACGAGGCCATCAAGNNCGGC		
		2151		2200
R.graminis	(2128)	CGCATCAACCACGTCTCTCGTCAAGATGCTCGCGTAAGGCC-CGAGCAAGC		
R.mucilaginosa	(2107)	TGCATCGCCCCCGTCTCTCGTCAAGATGATGGCATAG-----		
R.toruloides	(2116)	AGGATCAACAACGTCTCTCTCAAGATGCTCGCTTAGACACTCTTCCACT		
Consensus	(2151)	NGCATCAACCACGTCTCTCGTCAAGATGCTCGCNTAGNNNCNNNCNANN		
		2201		2250
R.graminis	(2177)	CTCGCCTAGACGCCCCGCTCACCCCAAGACCAGCTTTTCGACGTCTGTCT		
R.mucilaginosa	(2143)	-----		
R.toruloides	(2166)	CTCGCATCCCTTCCATACCCTATCCCGCCTGCACTCTTAGGACTCGCTTC		
Consensus	(2201)	CTCGCNTNNNNCCNNNCNNNNNNNNNNCTNTTNGNNNTCGNNTC		

Figure 2E

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		2251		2300
R.graminis	(2227)	GTGCCAAGAACGGACTTTCCTCCATACACATGTCGCCTTACTCTCTCGCC		
R.mucilaginosa	(2143)	-----		
R.toruloides	(2216)	TTGTCGGACTCGGATCTCGCATCGCTTCTTTCGTTCTTGGCTGCCTCTCT		
Consensus	(2251)	NTGNCNNNNNCGGANNTNNCNCNNNNNNNTNNNCNTNNCTNNCTCNCN		
		2301		2350
R.graminis	(2277)	GTCATCACGTCTCTCAGTTCTTTCGTATCCCGCGTCTCTCGGTCGTCAGT		
R.mucilaginosa	(2143)	-----		
R.toruloides	(2266)	AG-ACCGTGTCCGTATTACCTCGAGATTGTGAATACAAGCAGTACCCATC		
Consensus	(2301)	NNNANCNNGTCNNTNNNNNCTNNNGNNTNNNNNNNCNNNCNGTNNNCANN		
		2351		2400
R.graminis	(2327)	-ACACGTGTATAGAGCCTGGAATGGATTGCAAGTCTTCGAGTTCAAAAAA		
R.mucilaginosa	(2143)	-----		
R.toruloides	(2315)	CACGCATCCGATAAATCAGGGAGAGAATCTACGCTTGCGGGAGCTTCTTG		
Consensus	(2351)	NACNCNTNNNNNNNANNCGGNANNGANTNNANGNNTNCGNGNNCNNNNNN		
		2401		2450
R.graminis	(2376)	AAAAAAA-----		
R.mucilaginosa	(2143)	-----		
R.toruloides	(2365)	CGCATAAACTGTGCGAGTGCGGGCGTTAGTGCGAAGTCAACGAAGGCGAGT		
Consensus	(2401)	NNNANAAANNN		
		2451		2475
R.graminis	(2384)	-----		
R.mucilaginosa	(2143)	-----		
R.toruloides	(2415)	GGCAGCGGCTCACTACCGCCTCGAG		
Consensus	(2451)	NN		

Figure 2F



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ATGGCCCCCTTCCTTGGACTCGCTCGCCACCACGCTCGCCAACGGCTTTACCAACGGCTCGCACGCCGCTCCGA  
CCAAGTCGGCTGCGGGCCCCACTTCGGCTCTCGCCGACGCCCCGGCCTCGATGGCCACGCCGCGCACCAGTC  
GCAGCTCGAGATCGTGCAGGAGCTCCTCAGCGACCCACCGACGACGTCGTGAGCTCAGCGGGTACAGCCTC  
ACCGTCCGTGACGTTGTGCGCGCCGCCCCGCAAGGGGCGCAGGGTCCGCGTCCAGAACGACGACGAGATCCGCG  
CACGCGTCGACAAGAGCGTCGACTTCTCAAGGCCAGCTTCAGAACTCGGTCTACGGAGTACCACGGTGGC  
TTCGAGACGAGAGGCGGAAATCTCGGGATGCCGACGCGCTGAACGCTGACACTCGCTTGAGACGGCTGCCGCG  
GTCTTGACAGGTTTTCGGTGGCTCGGCCGACACGAGGACTGAGGATGCAGTCAGCCTCCAGAACGGCGCTCATCG  
AGCACCAGCTCTGCGGCGTGACGCCGACGTCCTGCTCCTTCAGCGTCGGACGCGGCCCTCGAGAACACGCT  
TCCGCTCGAGGTGCTCCGCGGCGCCATGGTCATCCGCGTCAACTCGCTCACGCGTGGCCACTCGGCCGTCCG  
CTCGTCGTCTTGGAGGCGCTACCAACTTCTTGAACCACGCGATCACGCCATCGTCCCCCTCCGCGGCTCCA  
TCTCGGCGTCGGGCGACCTCAGCCCGCTCTCGTACATCGCCGGCGCCATCACCGGTACCCCGACGTCGAAGGT  
TCACGTTTTGCACGAGGAACCGAGAAGATCATGTTTGCGCGCGAGGCCATCTCGCTCTTTGGTCTCGAGGCA  
GTCGGTTCGCGAGTCTGACTGCACTGAGCTGTTTCGAGAGTCTCCAGTTTGCTGACTGCCCTTTGTTCA  
TGCGATTGCACTCCTCGGCCGCAAGGAGGGTCTCGGTCTGGTCAACGGAACGGCCGTCTCCGCTCGATGGCG  
ACCCTCAGTCTGCACGACTCGCATATGCTCTCGCTCTCTCGCAGGCCCTGACGGCTCTCACGGTGGAGGCCA  
TGGTCCGCCAGCAGGGCTCGTTTCGCGCCGTTTATCCACGACGCTCTGCCGCCCGCACCCCGGCCAGGTGAGGT  
CGCGCGCAACATCCGCACGCTCCTTTCCGGCTCGTCGTTTGCCGTTGAGCACGAGGAGGAGGTCAAGGTCAAG  
GACGACGAGGGCATTTCTTCGCCAGGACCGCTACCCGCTCCGCACGTCGCCTCAGGTTTCGTCCCCCTCTCTCC  
CCTTCCCTCCGTCCGACCGGCGCGTCGAGACTTACGTTTTGCGTATCCAGTTCTCGGCCGCTCGTGGAGGA  
CATGATGCACGCCTACTCGACTCTCTCGCTCGAGAACAACACGACGACCGACAACCCGCTCTCGACGTCGAG  
AACAAGCAGACCGCGCACGGCGGCAACTTCCAGGCGTCGGCTGTCTCGATTTTCGATGGAGAAGACAGGTGCG  
TCTCTCGCTGCCCTTCGTACTCCGATCTTGTCGTAATGTTCTTCTCTCGAGGCTCGCACTCGCCCTCATCGG  
CAAGCTCAACTTCACGACGTGCACCGAGTTGCTCAACGCTGCCATGAACCGCGGCCGTGCCTTCGTGCCTCGCT  
GCCGAGGACCCGTCGCTCAACTATCACGCAAGGGCTTGGACATTACATCGCTGCTTACGCTTCGGAGGTGA  
GCCGTCGACGTTCTCCGCCGTCGCTCGTCCCCCTTCAGCGCACCCAGGCTGACTTCCTTTCCCTCTGTAGCTCG  
GCCACCTTGCCAACCCGGTCACTACCTTCGTCCAGCCCGCAGAGATGGGCAACCAGGCCGTCAACTCGCTCGC  
TCTCATCTCCGCGCGCCGCACTGCCGAGGCCAACGACGTCCTTTCTCTCGTGCGTTTCGTGTGCAATGAGTCC  
CGACGCAATAGCGACTGACTGCGCGATCCTGAGCAGCTTCTCGCCTCGCACCTGTACTGCACGCTCCAGGCCG  
TCGACCTCCGCGCGATGGAGCTCGACTTCAAGAAGCAGTTTCGACCCGCTTCTCCCGACTCTCTCCAGCAGCA  
CCTCGGCACTGGCCTCGACGTCAACGCACTTTCGCTCGAGGTCGAAGAAGGCGCTCAACAAGCGTCTCGAGCAG  
ACGACGACGTACGACCTCGAGCCGCGCTGGCACGACGCTTCTCGTACGCGACCGGCACCGTCTCGAGCTCC  
TCTCGTCTCGCCCTCTGCCAACGTCACCCCTTACTGCCGTCAACGCGTGGAAGGTTGCCTCGGCCGAGAAGGC  
CATCTCGCTCACGCGCGAGGTGCGCAACCGCTTCTGGCAGACGCGCTTTCGAGGCGCCGCGCACGCATAC  
CTCTCGCCGCGCACGCGCTCTGTACTCGTTTCGTGCGCGAGGAGCTCGGCGTGCAGGCGCGCCGCGGCGACG  
TGTTTGTGCGCGTGACGAGGAGACGATCGGGAGCAACGTCTCGCGCATCTACGAGGCCATCAAGGACGGCCG  
CATCAACCACGTCCTCGTCAAGATGCTCGCGTAAGGCCCGAGCAAGCCTCGCCTAGACGCCCGCCTACCCCA  
AGACCAGCTTTTCGACGTCGTGTCGTGCCAAGAACGACTTTCCTCCATACACATGTCTGCTTACTCTCTCGC  
CGTCATCACGTCTCTCAGTTCTTTCGTATCCCGCGTCTCT

FIGURE 3

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ATGGCACCTTCCTTGGACTCGCTCGCCACCACGCTCGCCAACGGCTTTACCAACGGCTCGCACGCCGCTCCGA  
CCAAGTCGGCTGCGGGCCCCACTTCGGCTCTCCGCCGCACGCCCGGCTCGATGGCCACGCCGCGCACCGATC  
GCAGCTCGAGATCGTGCAGGAGCTCCTCAGCGACCCACCGACGACGTCGTTCGAGCTCAGCGGGTACAGCCTC  
ACCGTCCGTGACGTTGTTCGGCGCCGCCGCAAGGGGCGCAGGGTCCGCGTCCAGAACGACGACGAGATCCGCG  
CACGCGTCGACAAGAGCGTCGACTTCCTCAAGGCCAGCTTCAGAACTCGGTCTACGGAGTCACCACGGTGCG  
TTCCGAGACGAGAGGCGGAAATCTCGGGATGCCGCGAGCGCTGAACGCTGACACTCGCTTGGACGGCTGCCGCG  
GTCTTGACAGGGTTTCGGTGGCTCGGCCGACACGAGGACTGAGGATGCAGTCAGCCTCCAGAAGGCGCTCATCG  
AGCACCAGCTCTGCGGCGTGACGCCGACGTCGCTCTCGTCTTCAGCGTCGGACGCGGCTTCGAGAACACGCT  
TCCGCTCGAGGTCGTCCGCGGCCATGGTTCATCCGCGTCAACTCGCTCACGCGTGGCCACTCGGCCGTCCGC  
CTCGTCGTCTTTCGAGGCGCTACCAACTTCTTGAACCACGCGATCACGCCATCGTCCCCCTCCGCGGCTCCA  
TCTCGGCGTCGGGCGACCTCAGCCCGCTCTCGTACATCGCCGGCGCCATCACCGGTACCCCCGACGTCAAGGT  
TCACGTTTTGCACGAGGGAACCGAGAAGATCATGTTTGCAGCGCAGGCCATCTCGCTCTTGGTCTCGAGGCA  
GTCCGTTACGTTCGCGAGTCTGACTGCAGTGAGCTGTTTCGAGAGTCTCCAGTTTGCTGACTGCCCTTTGTTCA  
TGCGATTGCAGTCCTCGGCCCGAAGGAGGGTCTCGGTCTGGTCAACGGAACGGCCGTCTCCGCTCGATGGCG  
ACCCTCAGTCTGCACGACTCGCACATGCTCTCGCTCTCTCGCAGGCCCTTGACGGCTCTCACGGTGGAGGCCA  
TGGTTCGGCCAGCAGGGCTCGTTTCGCGCCGTTTCATCCACGACGCTGCGCCGCCGACCCCGGCCAGGTTCGAGGT  
CGCGCGCAACATCCGCACGCTCCTTTCCGGCTCGTCTGTTTGCCTTGAGCACGAGGAGGAGTCAAGGTCAAG  
GACGACGAGGGCATTCTTCGCCAGGACCGCTACCCGCTCCGCGACGTCGCTCAGGTTCTGTCCTCTCTCTCC  
CCTTCCCTCCGTCGCGACCGCGCGTCGAGACTTACGTTTTGCGTATCCAGTTCTCTCGGCCGCTCGTGGAGGA  
CATGATGCACGCTACTCGACTCTCTCGCTCGAGAACAACACGACGACCGACAACCCGCTCCTCGACGTCGAG  
AACAGCAGACCGCGCACGGCGGCAACTTCCAGGCGTCGGCTGTCTCGATTTTCGATGGAGAAGACCAGGTGCG  
TCTCTCGCTGCCCTTCGTAATCCGATCTTGTGCTGAATGTTCTTCTCTCTCGAGGCTCGCACTCGCCCTCATCGG  
CAAGCTCAACTTCACGCGAGTGCACCGAGTTGCTCAACGCTGCCATGAACCGCGGCCCTGCCTTCGTGCCCTCGCT  
GCCGAGGACCCGTCGCTCAACTATCACGGCAAGGGCTTGGACATTCACATCGCTGCTTACGCTTCGGAGGTGA  
GCCGTCGACGTTCTCCGCCGTCGCTCGTCCCCTTCAGCGCACCCAGGCTGACTTCCTTTCCCTCTGTAGCTCG  
GCCACCTTGCCAACCCGGTCACTACCTTCGTCCAGCCCGCAGAGATGGGCAACCAGGCCGTCAACTCGCTCGC  
TCTCATCTCCGCGCGCCGCACTGCCGAGGCCAACGACGTCCTTTCTCTCGTGCGTTTCGTGTCGCAATGAGTCC  
CGACGCAATAGCGACTGACTGCGCGATCCTGAGCAGCTTCTCGCCTCGCACCTGTACTGCACGCTCCAGGCCG  
TCGACCTCCGCGCGATGGAGCTCGACTTCAAGAAGCAGTTCGACCCGCTTCTCCGACTCTCTCCAGCAGCA  
CCTCGGCACTGGCCTCGACGTCAACGCACTTGGCTCGAGGTCAAGAAGGCGCTCAACAAGCGTCTCGAGCAG  
ACGACGACGTACGACCTCGAGCCGCGCTGGCACGACGCTTCTCGTACGCGACCGGCACCGTCGTTCGAGCTCC  
TCTCGTCTCGCCCTCTGCCAACGTCACCCCTTACTGCCGTCAACGCGTGGAAGGTTGCCTCGGCCGAGAAGGC  
CATCTCGCTCACGCGCGAGGTGCGCAACCGCTTCTGGCAGACGCGCTCTTCGAGGCGCCGCGCACGCATAC  
CTCTCGCCGCGCACGCGGCTCTGTACTCGTTTCGTGCGCGAGGAGCTCGGCGTGCAGGCGCGCCGCGGCGACG  
TGTTTGTTCGGCGTGACGAGGAGACGATCGGGAGCAACGTCCTCGCGCATCTACGAGGCCATCAAGGACGGCCG  
CATCAACCAGTCTCTCGTCAAGATGCTCGCGTAAGGCCCGAGCAAGCCTCGCCTAGACGCCCCGCTCACCCCA  
AGACCAGCTTTTCGACGTCGTGTCGTGCCAAGAACGACTTTCCTCCATACACATGTCGTCTTACTCTCTCGC  
CGTCATCACGTCTCTCAGTTCTTTCGTATCCCGGCTCTCT

FIGURE 4